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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/857,348	07/24/2001	Fredrik Persson	66477-012-5	3135

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EXAMINER	
MACARTHUR, VICTOR L	
ART UNIT	**PAPER NUMBER**
3679	

DATE MAILED: 06/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/857,348	PERSSON ET AL.	
	Examiner	Art Unit	
	Victor MacArthur	3679	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 April 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3,5,7,8 and 12-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,5,7,8 and 12-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☒ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submissions filed on 3/12/04 and 4/21/2004 have been entered.

Priority

Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Sweden on 12/03/1998. It is noted, however, that a copy of a certified copy of the priority document has not been received.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-3, 5, 8 and 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Clavel U.S. Patent 4976582 in view of Latzen U.S. Patent 2733085.

Claim 1. Clavel discloses (fig.2) an industrial robot including at least one linkage device (5) in which pull rods (5a, 5b) are arranged in a multi-joint system where the joints include three-

axle ball and socket joints (26a, 26b, 27a, 27b as described in col.3, ll.43-45). Clavel does not expressly disclose how the ball is supported and retained in the socket. Latzen teaches (fig.1) supporting and retaining a ball (1) within a socket (2) by having a bearing element (7) fixed so that the bearing element does not rotate in a housing (portion of 2 receiving 7) in the socket of a joint, the bearing element further including friction-increasing means (15) in the form of grooves arranged parallel with a central axis of the bearing element, the housing including a surface (surface of 2 contacting 15) against which the bearing element abuts and the surface being provided with friction-increasing means (grooves in 2 receiving 15) in the form of complementary grooves engageable with the grooves provided on the bearing element to increase friction between the surface and the bearing element. Latzen states (col.2, ll.10-14) that supporting a ball in a socket in this manner compensates for any eccentricity and ensures a good seat. Therefore, it would have been obvious to one with ordinary skill in the art at the time the invention was made to support the Clavel ball as taught by Latzen, for the purpose of compensating for any eccentricity and ensuring a good seat.

Claim 2. Latzen teaches that the bearing element comprises an annular bearing element.

Claim 3. Latzen teaches that the friction-increasing means is structured as to penetrate (as seen in fig.1) the bearing element effecting a permanent deformation.

Claim 5. Latzen teaches that the bearing element abuts with the surface and is pressed there against to fit tightly.

Claim 8. Clavel discloses a robot that appears to be a delta robot. Furthermore, the applicant clearly states that the prior art to Clavel comprises a delta robot, as is stated in lines 17-19 of page 1 of the applicant's specification.

Claim 12. Clavel discloses a method for eliminating risk of play in a three-axle ball and socket joint in an industrial robot, comprising the steps of providing at least one linkage device for the robot, the device having pull rods arranged in a multi-joint system where the joints each comprise the three-axle ball and socket joint. Clavel does not expressly disclose how the ball is supported and retained in the socket. Latzen teaches (fig.1) supporting and retaining a ball (1) within a socket (2) by providing the socket of the joint with a housing (portion of 2 receiving 7) to accommodate a bearing element (7), providing the bearing element with friction-increasing means (15) in the form of grooves arranged parallel with a central axis of the bearing element, providing the housing with a surface (surface of 2 contacting 15) against which the bearing element abuts, fixing the bearing element such that the bearing element does not rotate in the housing, the fixing step being effected by providing the surface with friction increasing means (grooves in 2 receiving 15) in the form of complementary grooves engageable with the grooves provided on the bearing element, and engaging the friction-increasing means with the bearing element when the bearing element is positioned in place. Latzen states (col.2, ll.10-14) that supporting a ball in a socket in this manner compensates for any eccentricity and ensures a good seat. Therefore, it would have been obvious to one with ordinary skill in the art at the time the invention was made to support the Clavel ball as taught by Latzen, for the purpose of compensating for any eccentricity and ensuring a good seat.

Claim 13. Latzen teaches that the bearing is pressed (as seen in fig.1) to fit tightly in place in the housing of the joint socket, thus necessarily requiring a step of pressing.

Claim 14. Latzen teaches that the material of the bearing element is deformed by permanent deformation by the friction-increasing means when the bearing element is placed in

position (as seen in fig.1), thus necessarily requiring the step of deforming the material of the bearing element.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Clavel U.S. Patent 4976582 in view of Latzen U.S. Patent 2733085, as applied to claim 1 above, and further in view of Matsuoka U.S. Patent 4430016.

Claim 7. Latzen does not expressly state what material the bearing element is made of. Matsuoka teaches (figs 1 and 3) that it is beneficial to make bearings (4) from a polymer material for the purpose of improving lubrication (col.3, ll.13-17). Therefore, it would have been obvious to make the bearing from a polymer material, as taught by Matsuoka, for the purpose of improving lubrication.

Response to Arguments

Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Victor MacArthur whose telephone number is (703) 305-5701. The examiner can normally be reached on 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Daniel P. Stodola can be reached on (703) 308-2686. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1113.

VLM
May 20, 2004

Daniel P Stodola

DANIEL P. STODOLA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3600